samples? And are such samples really necessary for most research purposes?

Answers to these and related questions will doubtless be forthcoming as experience of Internet research accumulates. The research community should turn its collective mind to addressing the numerous ethical, scientific and technical problems that will inevitably arise if investigations are permitted to be conducted on the Web in an uncontrolled and uncoordinated manner. Perhaps we need to establish a global, multidisciplinary Internet research committee to monitor this activity. Meanwhile, editors of scientific and medical journals have a crucial role to play. They should make clear to all potential authors contemplating electronic data collection that the full rigours of the peer review process will be brought to bear at the point of submission for publication. A forceful declaration now that spells out the main ethical and scientific criteria by which research conducted on the Internet is likely to be judged by quality publications may prove the most effective means of avoiding future anarchy in cyber-research.

References


Yours faithfully

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A case of invasive serogroup C meningococcal disease after a community vaccination programme in Rotherham, South Yorkshire

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Keywords: Invasive meningococcal disease, outbreak, community immunization programme

Background

Between 8 December 1995 and 11 January 1997, five confirmed cases of septicaemia caused by serogroup C strains (four caused by serogroup C2b P1.5, P1.2) and one probable case were notified to the Department of Public Health, Rotherham Health Authority, South Yorkshire.\(^1\) In January 1996 a mass community chemoprophylaxis and vaccination programme was undertaken in response to this community outbreak of invasive meningococcal disease in Rotherham, South Yorkshire.\(^2\) A total of 8200 young people aged between two and 18 years received prophylactic antibiotics and vaccine during 12-23 January 1996 (92.2 per cent coverage). There were no further cases in the affected community during the following month and the outbreak was declared over in mid-February.

We report a case of invasive meningococcal disease caused by the outbreak strain in a teenage girl with a documented history of having received antibiotics and vaccine. The date of onset of illness was 21 February 1997 (ten days after the...
outbreak was deemed over). The patient's general practitioner administered pre-admission parenteral benzylpenicillin as recommended by the Chief Medical Officer. This course of action, which should be commended, was not repeated by other practitioners during the outbreak or a six-week period after 11 January 1997 in the Rotherham area.

All of this individual's close peer group contacts had been included in the target population during the prophylaxis programme. This presented an opportunity to investigate and document the antibody responses to meningococcal vaccine in British youngsters. Studies in other countries have shown that there can be considerable variation in antibody levels evoked by vaccination between different population groups of various ages.

Subjects, methods, and results

Sixteen young people, the patient and a sibling (age range 8–17 years) were tested for serogroup C polysaccharide antibody. These individuals were chosen because they constituted a group who were in close social contact with the case during the period before the onset of illness and were considered a representative sample of the vaccinated population. It was thought that this group would be willing to provide the necessary blood sample as a consequence of their experiences during the outbreak and community immunization programme, and raised awareness and interest in the condition. The reason for testing was explained to the young people and their parents, and individual results were reported back. A serum specimen taken from the case immediately after admission to hospital was tested. Every member of the close social group participated.

All young people, except the case, had antibody levels normally expected 2–6 weeks post vaccination (≥ 5 μg/ml). As shown in Table 1, there was a hundredfold difference in antibody levels between minimal and maximal responders. After clinical recovery, convalescent serogroup C antibody levels of the case had increased to 400 μg/ml.

Comment

The occurrence of this case possibly represents a failure of the community prophylaxis programme. However, 17 out of the 18 (94 per cent) young people selected for testing had serological responses within the expected range, which could be considered adequate for protection. This is consistent with the published experience that antibody levels ≥ 5 μg/ml are achieved in 80–90 per cent of recipients. Natural infection is regarded as being better at providing protective immunity to meningococcal disease than unconjugated polysaccharide vaccine. Antibody responses in this patient at admission to hospital and during convalescence support this view. This contrasts with Haemophilus influenzae Type b, where conjugate vaccine induces better antibody levels than natural infection.

The lesson to be drawn from this incident is that additional cases may occur despite high levels of vaccination coverage during a community prophylaxis programme in a group of subjects showing a normal range of vaccine response. It reinforces the need for parents, schoolteachers and health care professionals to maintain a high level of awareness for further cases. Individuals not considered for carriage eradication with antibiotics and those in whom eradication is unsuccessful will continue to harbour disease-causing strains and remain potential sources of infection.

To further evaluate the impact of the community prophylactic programme, in Rotherham, a large study comparing nasopharyngeal carriage rates among young people who received and did not receive prophylaxis during the programme has been undertaken. Results of this research will be published in due course.

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Accepted on 21 October 1997